



## Release Notes

# hp StorageWorks Windows Kit for Enterprise Virtual Array

**Product Version:** 3.0d

Third Edition (May 2004)

**Part Number:** AV-RUH2C-TE

This document contains the most recent product information about the HP StorageWorks Windows Kit v3.0d used for integrating host servers with the StorageWorks Enterprise Virtual Array (VCS version 3.014).

For the latest version of the Windows Release Notes and other documentation, access the HP storage web site at <http://www.hp.com/country/us/eng/prodserv/storage.html>.



---

© Copyright 2001–2004 Hewlett-Packard Development Company, L.P.

Hewlett-Packard Company makes no warranty of any kind with regard to this material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Hewlett-Packard shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

This document contains proprietary information, which is protected by copyright. No part of this document may be photocopied, reproduced, or translated into another language without the prior written consent of Hewlett-Packard. The information contained in this document is subject to change without notice.

Compaq Computer Corporation is a wholly-owned subsidiary of Hewlett-Packard Company.

Hewlett-Packard Company shall not be liable for technical or editorial errors or omissions contained herein. The information is provided “as is” without warranty of any kind and is subject to change without notice. The warranties for Hewlett-Packard Company products are set forth in the express limited warranty statements for such products. Nothing herein should be construed as constituting an additional warranty.

Printed in the U.S.A.

## HP StorageWorks Windows Kit for Enterprise Virtual Array Release Notes

Third Edition (May 2004)

Part Number: AV-RUH2C-TE

## About this document

This section describes the content reflected in this document, including:

- [Release Notes information](#), page 3
- [Intended audience](#), page 4

## Release Notes information

These release notes cover the following major topics:

- [New features](#), page 4
- [Enterprise Virtual Array storage system](#), page 5
- [Adobe Acrobat Reader](#), page 6
- [Supported operating systems](#), page 7
- [Avoiding problem situations](#), page 10
- [Enterprise Storage System notes](#), page 11
- [Storage System Scripting Utility for Enterprise Virtual Array](#), page 13

## Intended audience

This document is intended to assist customers who purchased the StorageWorks Enterprise Virtual Array and the associated StorageWorks Operating System kits. Other associated software packages are:

- StorageWorks Virtual Controller Software Package v3.014 for Dual HSV Controllers
- StorageWorks Snapshot for Virtual Controller Software v3.014 for Dual HSV Controllers

This document is also intended for use by HP Customer Service personnel responsible for installing and maintaining designated devices associated with this storage system.

## Conventions

The following conventions are used throughout this document:

- Unless otherwise specified, all references to VCS v3.014 refer to the software package (kit) and documentation version level. These software packages and documentation support VCS v3.014.
- *The System Software for Enterprise Virtual Array* is the storage system software that contains Virtual Controller Software (VCS), Environmental Monitoring Unit (EMU) firmware, programmable component images, diagnostics, and message files. This storage system software is usually represented by a four-digit number, for example v3.014.
- Unless otherwise specified, all references to an HSV110 controller or an HSV110 controller pair should be interpreted as the HSV110 or HSV100 controller or controller pair.
- Unless otherwise specified, all references to the Enterprise Storage System or storage system should be interpreted as the EVA5000 or the EVA3000.
- Unless otherwise specified, all references to rack should be interpreted as the 9000-Series Enterprise Storage System Rack.
- Unless otherwise specified, all licensing references to host ID should be interpreted as the storage system World Wide Name (WWN).
- Unless otherwise specified, all references to the management appliance should be interpreted as the HP StorageWorks Management Appliance.
- Unless otherwise specified, all references to a single instance of a management agent should be interpreted as the HP StorageWorks Command View EVA.
- The term Fabric means Fibre Channel Switched (FC-SW) connectivity.

## New features

This section briefly describes new features and changes that are supported by the version 3.0d release of the Platform Kit together with the array controller running VCS version 3.014.

### New features for version 3.0d

The following are major enhancements included in the v3.0d release of the Platform Kit:

- Support for VCS 3.014.

- The EVA 5000/3000 v3.0d platform kit contains the latest supported Emulex (4.82a16) and QLogic (8.2.0.73) drivers. These drivers have also been qualified for use with the EMA (HSG80) Storage systems.

---

**Note:** The *Windows for Enterprise Virtual Array Installation and Configuration Guide v3.0b* has not changed.

---

## Enterprise Virtual Array storage system

This document contains the most recent product information about the Enterprise Virtual Array. An Enterprise Virtual Array storage system consists of the following:

- One pair of HSV110 controllers.
- An array of physical disk drives that the controller pair controls. The disk drives are located in drive enclosures that house the support systems for the disk drives.
- Associated physical, electrical, and environmental systems.
- Command View EVA, which is the graphical interface to the storage system. Command View EVA software resides on the Management Appliance and is accessed through a browser.
- Management Appliance, switches, and cabling.
- At least one host attached through the fabric.

## Enterprise Virtual Array system software

HP StorageWorks Virtual Controller Software (VCS) v3.014 provides storage software capability for the HSV110 Array Controller and is provided in the VCS v3.014 software kit.

## Multiple storage system types

The extended interoperability of the heterogeneous SAN allows you to mix several types of HP StorageWorks storage systems. For more information about configuration rules, refer to the *HP StorageWorks SAN Design Reference Guide* at <http://h18000.www1.hp.com/products/storageworks/san/documentation.html>

## Enterprise Virtual Array documentation

The Enterprise Virtual Array Catalog of Associated Documentation is included on the Technical Documentation page. You can display a comprehensive list of Enterprise Virtual Array documentation as well as associated product documentation that may be required to operate your storage system. To access the Technical Documentation page, go to <http://h18006.www1.hp.com/products/storageworks/enterprise/documentation.html>

## Supported configurations

Refer to the Enterprise Virtual Array Quick Specs for supported configurations. The *HP StorageWorks SAN Design Reference Guide* is a detailed guide for SAN configurations and is available at

<http://h18004.www1.hp.com/products/storageworks/san/documentation.html>

**IMPORTANT:** Windows 2000 Datacenter support is not included in this release because of lengthier certification requirements for Datacenter solutions. Upon certification, Platform Kit Software Version 3.0 for Windows 2000 Datacenter and its associated documentation is made available.

## Adobe Acrobat Reader

Adobe Acrobat Reader is required to read .pdf documentation in the kit and can be downloaded from <http://www.adobe.com/products/acrobat/readstep2.html>.

## Supported operating systems

The Enterprise Virtual Array storage system is compatible with the following operating systems:

- Tru64 UNIX
- Windows NT/Windows 2000/Windows Server 2003 (32- and 64-bit)
- OpenVMS
- Sun Solaris
- HP-UX
- IBM AIX
- Linux
- Novell NetWare

[Table 1](#) lists the operating system's specifications, which are compatible with the Enterprise Virtual Array.

---

**Note:** [Table 1](#) contains current minimum level operating system specifications at the time of the Enterprise Virtual Array v3.014 release. Some component versions may change due to revision. For the latest information, go to:

<http://h18006.www1.hp.com/storage/index.html>

---

## Switch support

**Table 1: Operating system specifications**

Platform	OS version	Clustering	FCA (HBA)	Adapter firmware/ Boot BIOS	Adapter driver
Windows NT (Intel)	4.0/ SP 6a	MSCS	KGPSA-CB 176479-B21	3.91a1 BIOS 1.63a1	4-4.82a1 6
			FCA2101 245299-B21	3.91a1 BIOS 1.63a1	4-4.82a1 6
			FCA2355 308540-B21	3.91a1 BIOS 1.63a1	4-4.82a1 6
Windows 2000 (32-bit)	5.0 SP 3, SP 4	MSCS	KGPSA-CB 176479-B21	3.91a1 BIOS 1.63a1	5-4.82a1 6
			FCA2101 245299-B21	3.91a1 BIOS 1.63a1	5-4.82a1 6
			FCA2355 308540-B21	3.91a1 BIOS 1.63a1	5-4.82a1 6
			FCA2404 305573-B21	3.91a1 BIOS 1.63a1	5-4.82a1 6
			FCA2404DC 323264-B21	3.91a1 BIOS 1.63a1	5-4.82a1 6
			FCA2408 343073-B21	1.01a2 BIOS 1.63a1	5-4.82a1 6
			FC Mezzanine Card for BL20P	1.34	8.2.0.73
			FCA2214 281541-B21	1.34	8.2.0.73
			FCA2214DC 321835-B21	1.34	8.2.0.73



Table 1: Operating system specifications (Continued)

Platform	OS version	Clustering	FCA (HBA)	Adapter firmware/ Boot BIOS	Adapter driver
Windows Server 2003 (32-bit)	5.2	MSCS	KGPSA-CB 176479-B21	3.91a1 BIOS 1.63a1	5-4.82a1 6
			FCA2101 245299-B21	3.91a1 BIOS 1.63a1	5-4.82a1 6
			FCA2355 308540-B21	3.91a1 BIOS 1.63a1	5-4.82a1 6
			FCA2404 305573-B21	3.91a1 BIOS 1.63a1	5-4.82a1 6
			FCA2404DC 323264-B21	3.91a1 BIOS 1.63a1	5-4.82a1 6
			FCA2408 343073-B21	1.01a2 BIOS 1.63a1	5-4.82a1 6
			FC Mezzanine Card for BL20P	1.34	8.2.0.73
			FCA2214 281541-B21	1.34	8.2.0.73
			FCA2214DC 321835-B21	1.34	8.2.0.73
Windows Server 2003 (64-bit)	5.2	MSCS	LP9802 AB232A	3.91a1 BIOS 1.63a1	6-5.00a1 1

**Note:** This Fibre Channel Platform Kit supports the Fibre Channel switches and firmware versions listed in the *HP StorageWorks SAN Design Reference Guide* at <http://h18000.www1.hp.com/products/storageworks/san/documentation.html> HP recommends that you do not mix switch firmware versions in your SAN. It is considered best practice to uniformly upgrade all switches in the SAN.

## Multiple path support

Windows with EVA storage requires the installation of StorageWorks Secure Path on each host to achieve high availability multiple path capability. Secure Path is licensed on a per-host basis. Each Windows host requires Secure Path for Windows. Refer to the HP StorageWorks Enterprise Virtual Array 5000 specifications page at the following Web site for Secure Path versions:

<http://h18006.www1.hp.com/products/storageworks/enterprise/specifications.html>

## Single path support configurations

A Windows 2000, Windows NT, or Windows 2003 32- and 64-bit server with a single FCA supports single path mode.

---

**Note:** Single path mode should not be used in mission critical environments.

---

## Supported servers

Windows supports Intel-based, ProLiant X86, and ProLiant BL20p and BL40p Blade Servers.

## Operating constraints

Any operating constraints specific to the Enterprise Virtual Array hardware and Command View EVA can be found in their respective release notes.

## SAN boot procedures

Booting from the SAN is supported for Windows NT, Windows 2000, and Windows 2003 for multi-path configurations. SAN boot procedures are available on the *StorageWorks* web site.

<http://h18000.www1.hp.com/products/storageworks/san/documentation.html>

## Failover/failback

There are specific failback preference settings for the HSV controllers that are operating system specific (refer to the Enterprise Virtual Array hardware release notes for details).

## Avoiding problem situations

The following sections list problems that may arise during platform kit operation and how to avoid those problems.

### Command View EVA

Information about avoiding problem situations specific to Command View EVA can be found in the Command View EVA release notes.

### Enterprise Virtual Array version 3.014 hardware

Information about avoiding problem situations pertaining to Enterprise Virtual Array hardware can be found in the hardware release notes in your VCS kit.

### Secure Path version

The Enterprise Virtual Array with VCS 3.014 should not be operated with a previous version of Secure Path. Refer to the HP StorageWorks Enterprise Virtual Array 5000 specifications page to ensure that you have the current version of Secure Path for your operating system. The HP StorageWorks Enterprise Virtual Array 5000 specifications page can be accessed at the following web site:

<http://h18006.www1.hp.com/products/storageworks/enterprise/specifications.html>

## Codeload usage

When a maximum configured system is running at maximum load, codeload functionality cannot be used effectively due to Secure Path timing constraints. The system may time out before codeload is completed. Because of this behavior, VCS upgrade should be done during off peak usage.

## Avoiding problem situations with the SSSU

### Changing comments on a disk enclosure

You cannot use the SSSU to change comments on a disk enclosure. To avoid this situation, use Command View EVA to change comments on a disk enclosure. If you try to change a disk enclosure comment in the SSSU, the following error message appears:

```
Error: Invalid Operation
```

### Changing the name of a disk enclosure

Changing the name of a disk enclosure is not supported with the SSSU or with Command View EVA. If you try to change a disk enclosure name in the SSSU, the following error message appears:

```
Error: Invalid Operation
```

## Disk Resource Pending Timeout for large configurations

In order to ensure continuous operation of Disk Resources across SAN perturbations with Disk Resource counts greater than eight, HP recommends that the Pending Timeout parameter for each Disk Resource be increased from 180 seconds to 360 seconds.

To view and set the Pending Timeout parameter:

1. Open the **Microsoft Cluster Administrator**.
2. Select a **Disk Group** resource in the left pane.
3. Right-click each Disk Resource one at a time in the right pane and select **Properties**.
4. Select the **Advanced** tab from the **Properties** menu.
5. Locate the **Pending Timeout** value and change it to **360**.
6. Click **OK**.

## Enterprise Storage System notes

### Cable requirements

When an Enterprise Virtual Array is connected to a 1Gb switch an SC-to-LC cable is required for host connectivity. [Table 2](#) and [Table 3](#) provide listings of available cables.

**Table 2: LC-SC cables**

Length	Description	HP part number
2.0 m $\pm$ 40 mm	CA ASSY, LC-SC, Optical 2M	187891-002
5.0 m $\pm$ 80 mm	CA ASSY, LC-SC, Optical 5M	187891-005
15.0 m $\pm$ 150 mm	CA ASSY, LC-SC, Optical 15M	187891-015
30.0 m $\pm$ 300 mm	CA-ASSY, LC-SC, Optical 30M	187891-030
50.0 m $\pm$ 500 mm	CA-ASSY, LC-SC, Optical 50M	187891-050

**Table 3: LC-LC cables**

Length	Description	HP part number
2.0 m $\pm$ 40 mm	2-meter LC-LC Multi-Mode Fibre Cable	221692-B21
5.0 m $\pm$ 80 mm	5-meter LC-LC Multi-Mode Fibre Cable	221692-B22
15.0 m $\pm$ 150 mm	15-meter LC-LC Multi-Mode Fibre Cable	221692-B23
30.0 m $\pm$ 300 mm	30-meter LC-LC Multi-Mode Fibre Cable	221692-B26
50.0 m $\pm$ 500 mm	50-meter LC-LC Multi-Mode Fibre Cable	221692-B27

## Host considerations

This section contains information on issues and important reminders regarding the host servers.

### Windows 2000 and Windows Server 2003 specific notes

- There are two situations in which drive-letter remapping might occur and that could affect access to data by programs you may need to run. The first situation is one in which you replace one server with another. The second is a situation in which you simply replace an FC HBA in one of your systems. During such a system or adapter changeover, be sure to manually remap drives to drive letters using Disk Manager. This restores proper access to your data.
- If you replace an FC HBA in a server, you need to reinstall the HBA driver and then rerun the Fibre Channel Setup utility. This is so that Windows 2000/Windows Server 2003 can automatically reload the original driver for this adapter and reset many of the important registry settings. New connections are created on the HSV controller. Those WWNs should be assigned to the appropriate host.

## Upgrading from Windows NT 4.0 to Windows 2000 or Windows Server 2003

If you are upgrading from Windows NT 4.0 to Windows 2000 or Windows Server 2003, you must remove the software components installed by the previous version of the Fibre Channel Setup utility. Follow these steps:

1. Remove the software components installed from the previous Fibre Channel Setup utility. To do this, locate the previous CD-ROM and run the utility. Follow the procedures in it to remove components. Alternately, you can use the **Add/Remove Programs** applet.
2. Upgrade from Windows NT 4.0 to Windows 2000 or Windows Server 2003 as instructed by Microsoft's documentation.
3. Reboot.
4. Install the HBA driver upgrade as instructed in the *hp SANworks Windows NT/Windows 2000 Kit V2.0 for Enterprise Virtual Array*.
5. Run the Fibre Channel Setup utility to complete your installation.

## Registry growth in Windows

The Windows Plug-and-Play architecture has a limitation on the number of plug-and-play devices that are added or removed from the registry. Whenever devices are added or removed, or snapshots created or deleted, entries are added to the registry by the Plug-and-Play manager, potentially causing the registry to grow beyond the allowed capacity.

If more than 700 entries are in the registry, the next time the system reboots for any reason, the following error message occurs before the operating system boots up:

```
Failed to load Windows 2000 due to a file missing or corrupt in the  
\WINNT\SYSTEM32\CONFIG\SYSTEM directory.
```

Refer to the Microsoft Knowledge Base article (Q269075), which provides more information about the registry growth problem.

## Known limitations, large LUNs for Windows 2000

In Windows 2000, if any LUN greater than 7 is removed and a subsequent disk rescan is performed, the Found New Hardware wizard may ask you to finish the installation of the device that was removed. The Device Manager may show the device with a yellow warning icon on it. A reboot of the system completely removes the device.

## Storage System Scripting Utility for Enterprise Virtual Array

Refer to the *Command View EVA Release Notes* prior to using the Storage System Scripting Utility (SSSU), as SSSU communicates directly with the Command View EVA.

## Windows 2000dynamic disk SnapShots AND SnapClones

The use of SnapShots and SnapClones in HP SANs is not supported in a Windows 2000 environment if the SnapShot or SnapClone is presented to the same Windows 2000 host as the LUN from which the SnapShot or SnapClone was created. SnapShots and SnapClones are features of the HSG80 and HSV110 controller based HP Storage systems. All dynamic disks on a system have information in their metadata about the other dynamic disks on the system that exist. When Windows is presented with two dynamic disks that have the same information on them, it does not have code to resolve the conflict.

